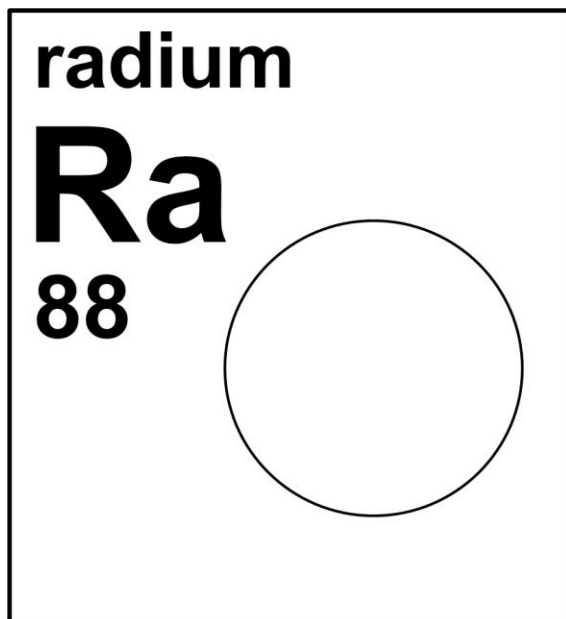





radium



Stable isotope	Atomic mass	Mole fraction
(none)		

Half-life of radioactive isotope

Less than 1 second 
 Between 1 second and 1 hour 
 Greater than 1 hour 

201 Ra	202 Ra	203 Ra	204 Ra	205 Ra	206 Ra	207 Ra	208 Ra	209 Ra	210 Ra
211 Ra	212 Ra	213 Ra	214 Ra	215 Ra	217 Ra	218 Ra	219 Ra	220 Ra	221 Ra
222 Ra	223 Ra	224 Ra	225 Ra	226 Ra	227 Ra	228 Ra	229 Ra	230 Ra	231 Ra
232 Ra	233 Ra	234 Ra							

Important applications of stable and/or radioactive isotopes

Isotopes in medicine

- 1) ^{226}Ra Radium is used in brachytherapy, which is method of localized treatment of various types of cancer. A sealed implant, such a rod, seed or needle, containing the radioactive isotope ^{226}Ra is inserted into or near a patient's tumor to apply a high dose of radiation to the tumor. The sealed implant is inserted by a physician or by use of an automated device called a remote afterloader and is removed from the patient once the tumor is destroyed.



Figure 1: Brachytherapy device (top) and seeds (bottom).

Isotopes in tracer studies

- 1) The isotopes ^{223}Ra , ^{224}Ra , ^{226}Ra , and ^{228}Ra are used to trace ocean water movement rates. They are optimal to use because they behave conservatively once released into ocean waters, meaning only mixing and decay processes affect their distribution, making them an ideal environmental tracer.